

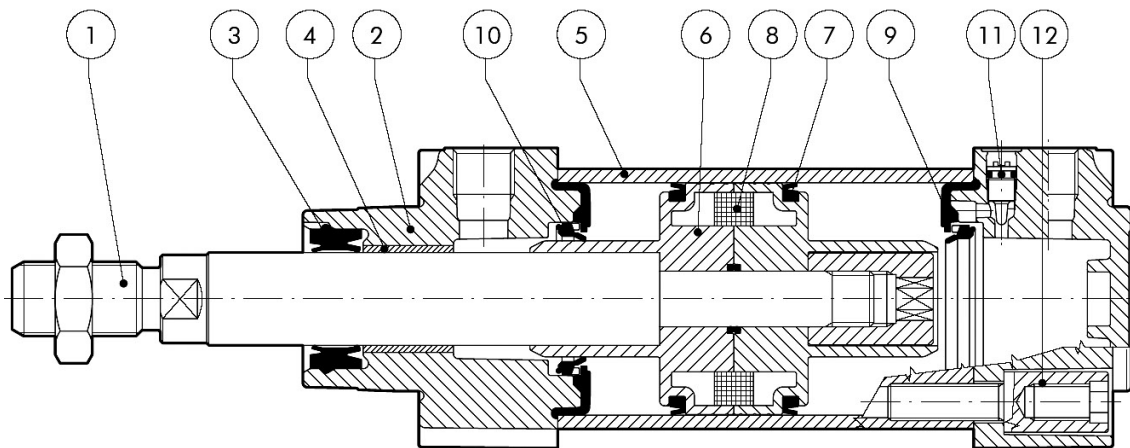
Actuators

Pneumatic actuators are usually utilized as executing elements in pneumatic systems. Available in a single-acting version (with a spring), double-acting and with a through-rod. In a single-acting version output position is forced by the spring, and a change of piston position requires compressed air intake. In a double-acting version both feed and return of the piston is obtained by compressed air. The actuators can be additionally equipped with magnets used for Non-contact Piston Position Detection and stroke cushioning.

Special design cylinders, "non-stick slip" version, are used to ensure smooth regulation of work. Used at low piston speed and transverse loads.

To prevent rotation of an actuator, it is recommended to use the piston rod of a special shape (TF actuator version) or guides. Then the piston rod and elements that are fixed to it are at constant angle or can transfer specified torque. All actuators are designed for operation with unlubricated air and do not require any maintenance. If lubricated air is used, lubrication must be continuous because it replaces the factory-applied grease.

Construction of ISO 15552 actuator



1. Piston rod: C45 steel or stainless steel, thick chromed.
2. Head: die cast aluminium.
3. Piston rod seal: polyurethane, NBR or FKM/FPM.
4. Guide bushing.
5. Body: drawn anodised calibrated aluminium.
6. Piston: self-lubricating technopolymer
7. Piston seal: polyurethane, NBR or FKM/FPM.
8. Magnet: plastoferrite.
9. Buffer + static O-rings: NBR or FKM/FPM
10. Cushioning seal: polyurethane, NBR or FKM/FPM.
11. Cushioning needle: OT 58 brass, with needle out movement safety system even when fully open.
12. Screws: for assembly.

INDUSTRIAL PNEUMATICS - actuators

ISO 6432 mini-cylinders



ISO 6432 Ø 8 ÷ 25 mm

Piston diameter: Ø 8, 10, 12, 16, 20, 25 mm

Working stroke: Up to 500 mm

Working press.: From 0.8 up to 10 bar - Ø 8 ÷ 12 mm
From 0.6 up to 10 bar - Ø 16 ÷ 25 mm

Working temp.: From -35°C up to +150°C

112

0

12

0050

X

P

version	construction	piston diameter	working stroke	material	sealing
101 - SE axial connection 102 - DEM axial connection 106* - SE 109* - DEA 110 - DE 111 - SE 112 - DEM 113 - DEMA	O - standard V - without head nut S - non-magnetic G - non-stick slip	08** 10** 12** 16 20 25	up to 500 mm	A - piston rod: C45 chrome piston: aluminium C - piston rod: C45 chrome piston: technopolymer Z - piston rod and nut: stainless steel piston: aluminium X - piston rod and nut: stainless steel piston: technopolymer	N - NBR P - polyurethane V - Viton*** B - low temperature***

* - available from Ø16mm piston diameter,

** - stainless steel piston rod,

*** - only for non-magnetic versions and with aluminium piston.

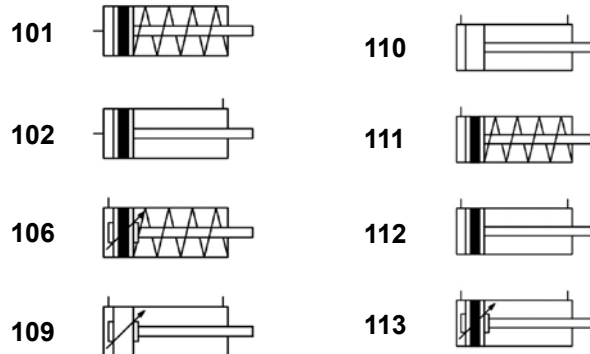
SE - single-acting (magnetic), cushioned (101, 111), adjustable cushioning (106),

DE - double-acting (non-magnetic), cushioned,

DEA - double-acting (non-magnetic), adjustable cushioning,

DEM - double-acting (magnetic), cushioned (102, 112),

DEMA - double-acting (magnetic), adjustable cushioning.



There are also economic versions of actuators (reduced weight) or versions made of stainless steel available.

INDUSTRIAL PNEUMATICS - actuators

Round cylinders RNDC series



RNDC Ø 32 ÷ 50 mm

Piston diameter: Ø 32, 40, 50 mm

Working stroke: Up to 500 mm

Working press.: From 0.4 up to 10 bar - Ø 32, 40 mm
From 0.3 up to 10 bar - Ø 50 mm

Working temp.: From -35°C up to +150°C

111	0	32	0100	C	N
version	construction	piston diameter	working stroke	material	sealing
109 - DEA 110 - DE 111* - SE 112 - DEM 113 - DEMA	O - standard V - without head nut S - non-magnetic G - non-stick slip	32 40 50	up to 500 mm	A - piston rod: C45 chrome piston: aluminium C - piston rod: C45 chrome piston: technopolymer Z - piston rod and nut: stainless steel piston: aluminium X - piston rod and nut: stainless steel piston: technopolymer	N - NBR P - polyurethane V - Viton** B - low temperature**

* - only for version with aluminium piston

** - only for non-magnetic versions and with aluminium piston

SE - single-acting (magnetic), cushioned (available only with aluminium piston)

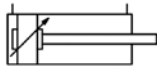
DE - double-acting (non-magnetic), cushioned

DEA - double-acting (non-magnetic), adjustable cushioning

DEM - double-acting (magnetic), cushioned

DEMA - double-acting (magnetic), adjustable cushioning

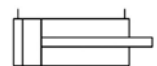
109



112



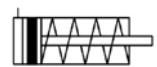
110



113



111



Actuators made of stainless steel are also available.

INDUSTRIAL PNEUMATICS - actuators

ISO 15552 cylinders



ISO 15552 type A Ø 32 ÷ 125 mm

Piston diameter: Ø 32, 40, 50, 63, 80, 100, 125 mm

Working stroke: Up to 2800 mm

Working press.: From 0.4 up to 10 bar - Ø 32, 40 mm

From 0.3 up to 10 bar - Ø 50, 63 mm

From 0.2 up to 10 bar - Ø 80 ÷ 125 mm

Working temp.: From -35°C up to +150°C

121

A

A1

0100

C

P

version	construction	piston diameter	working stroke	material	sealing
121 - DEMA 124 - DEM 126* - SE*	A - standard B - non stick slip C non-magnetic	32 40 50 63 80 A1 - 100 A2 - 125	up to 2800 mm	A - piston rod: C45 chrome piston: aluminium (standard for Ø ≥ 80 mm) C - piston rod: C45 chrome piston: technopolymer (standard for Ø ≤ 63 mm) Z - piston rod and nut stainless steel piston: aluminium X - piston rod and nut: stainless steel piston: technopolymer	N - NBR P - polyurethane V - Viton** B - low temperature**

* - available up to Ø 63, only with aluminium piston

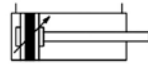
** - available only for non-magnetic versions and with aluminium piston

DEMA - double-acting (magnetic), adjustable cushioning

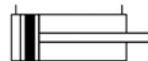
DEM - double-acting (magnetic), cushioned

SE - single-acting (magnetic), adjustable cushioning

121



124



126



There are also economic versions of actuators (reduced weight) or versions made of stainless steel available.

INDUSTRIAL PNEUMATICS - actuators

ISO 15552 cylinders



ISO 15552 Ø 160 ÷ 200 mm

Piston diameter: Ø 160, 200, mm

Working stroke: From 25 up to 2800 mm

Working press.: Up to 10 bar

Working temp.: From -10°C up to +70°C

W121

160

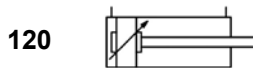
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version	piston diameter	working stroke
W120 - DEA W121 - DEMA W124 - DEM	160 - piston rod: C45 chrome - seal: NBR 200 - piston rod: C45 chrome - seal: NBR XA3 - Ø 160 mm - piston rod stainless steel seal: NBR XA4 - Ø 200 mm - piston rod stainless steel seal: NBR VA3 - Ø 160 mm - piston rod stainless steel seal: FKM/FPM VA4 - Ø 200 mm - piston rod stainless steel seal: FKM/FPM KA3 - Ø 160 mm - piston rod: C45 chrome seal: FKM/FPM KA4 - Ø 200 mm - piston rod: C45 chrome seal: FKM/FPM	from 25 to 2800 mm

DEA - double-acting (non-magnetic), adjustable cushioning

DEMA - double-acting (magnetic), adjustable cushioning

DEM - double-acting (magnetic), cushioned



Actuators



Mini actuator Ø 6 ÷ 16 mm - CRTC series

- Piston diameter: 6 - 10 - 16 mm
- Standard stroke length: 5, 10, 15 mm
- Threaded connection: M5
- Operation with unlubricated compressed air also possible
- Seals: NBR
- Versions: single-acting
- O-ring seal enables assembly directly in the machine body



Short-stroke actuator Ø 12 ÷ 100 mm - SSCY series

- Piston diameter: 12 ÷ 100 mm
- Standard stroke length: 5 ÷ 150 mm (depends on a version)
- Cushioning in end-of-stroke positions adjustable on both sides
- Operation with unlubricated compressed air also possible
- Seals: NBR, polyurethane, Viton
- Versions: single or double-acting, with a through-rod, protection against rotation, magnetic position sensors (standard), with a built-in oscillating flange
- Assembly set



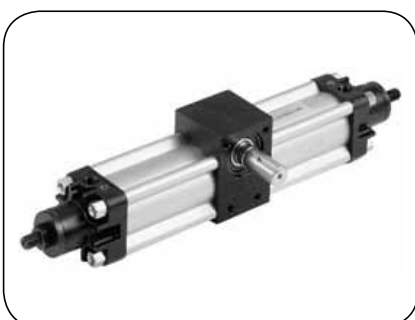
Compact actuator Ø 12 ÷ 100 mm - CMPC series

- Piston diameter: 12 ÷ 100 mm
- Single or double-acting with extended or retracted piston rod, with a through-rod, protection against rotation
- Operation with unlubricated compressed air also possible
- Seals: polyurethane
- Fixing holes spacing according to: ISO 6431-VDMA 24562, NFE 49-004-1 and 2
- Can be mounted in series of 2, 3 or 4 actuators (multi-actuator units)
- Multi-position units (with 2, 3 stages) can be formed
- Assembly set



Actuator with double piston rod Ø 32 ÷ 100 mm - TWNC series

- Piston diameter: 32 ÷ 100 mm
- Standard stroke length: 25 ÷ 500 mm
- Axial dimensions according to ISO 6431
- Cushioning in end-of-stroke positions adjustable on both sides
- Operation with unlubricated compressed air also possible
- Seals: NBR, polyurethane
- Versions: double-acting, with a single or twin through-rod, magnetic position sensors (standard)
- Assembly set



Rotary actuator Ø 32 ÷ 100 mm - R1 series

- Piston diameter: 32 ÷ 100 mm
- Standard rotation angle: 90°, 180°, 270°, 360° with mechanical stroke adjustment
- Magnetic position sensors
- Cushioning in end-of-stroke positions adjustable on both sides
- Seals: NBR
- Operation with unlubricated compressed air also possible
- Driving shaft with male pinion or female hole
- Construction: pinion - rack mechanism
- Special versions: on request

Actuators



Rotary actuator Ø 12 ÷ 25 mm - R2 series

- Piston diameter: 12 - 16 - 20 - 25 mm
- Standard rotation angle: 90°, 180° with mechanical stroke adjustment
- Magnetic position sensors
- Cushioning in end-of-stroke positions adjustable on both sides (except for the smallest size)
- Compact structure (e.g. dimensions of the smallest model 46x65x28 mm)
- Operation with unlubricated compressed air also possible
- Construction: drive with a double piston with a rack



Rotary actuator Ø 16 ÷ 40 mm, R3 series

- Piston diameter: 16 - 20 - 22 - 25 - 30 - 40 mm
- Adjustable rotation angle: 0° ÷ 180°
- Magnetic position sensors
- Versions: mechanical control of end-of-stroke positions, with hydraulic cushioning
- Operation with unlubricated compressed air also possible
- Construction: drive with a double piston with a rack



Rotary actuator Ø 20 ÷ 40 mm - R4 series

- Piston diameter: 20 - 32 - 40 mm
- Adjustable rotation angle: 0° ÷ 180° (accuracy of adjustment +/-5°)
- Magnetic position sensors
- Versions: mechanical control of end-of-stroke positions, rotary connection with 4 ports can be installed in a pinion
- Operation with unlubricated compressed air also possible
- Construction: pinion - rack mechanism
- Service life: over 2 million cycles



Rotary actuator TECNO - R5 series

- Adjustable rotation angle: 0° ÷ 180° (accuracy of adjustment +2°)
- Magnetic position sensors
- Versions: hydraulic cushioning in end-of-stroke positions
- Operation with unlubricated compressed air also possible
- Construction: drive with a double piston with a rack
- Service life: over 2 million cycles
- Weight: 0.53 kg (polymer material)



Hydraulic brake BRK series for ISO 6431 Ø 40 - 80 mm actuators

- Braking force: 6000 N (standard version), 5000 N (version with valves)
- Speed: 10 ÷ 6000 mm/min
- Seals: NBR
- Versions: with a throttle valve, a check valve, with both valves, with shut-off valve
- Construction: for operation with actuators according to ISO 6431

Grippers



Grippers with 2 parallel jaws - P1 series

- Gripper type: two-jaw, with jaws in parallel arrangement
- Construction: double-acting, with magnetic position sensors (on request)
- Piston diameter: 16 - 20 - 32 mm
- Seals: NBR



Grippers with parallel jaws - P2 series

- Gripper type: two-jaw, with jaws in parallel arrangement
- Construction: double-acting, with magnetic position sensors (except for the smallest size), for internal and external gripping
- Piston diameter: 6 - 10 - 16 - 20 - 25 mm
- Maximum operating frequency: 2 cycle/sec
- Single jaw stroke: 2 ± 7 mm (depends on size)



Grippers with parallel jaws - P3 series

- Gripper type: two-jaw, with jaws in parallel arrangement
- Construction: double-acting, with structural reinforcement, for internal and external gripping, with jaws position control
- Piston diameter: 50 - 64 - 80 - 100 - 125 mm
- Gripping force (per jaw at 6 bar): 50 ± 750 N (depends on size)
- Repeatability: 0.01 ± 0.02 mm (depends on size)
- Operation of 1 500 000 cycles without any maintenance is guaranteed
- Max. jaw length: 50 ± 125 mm (depends on size)
- Special versions: on request



Grippers with parallel jaws - P4 series

- Gripper type: two-jaw, with jaws in parallel arrangement, with long stroke
- Construction: double-acting, for gripping bulky objects, for internal and external gripping, with jaws position control (except for the smallest size)
- Piston diameter: 10 - 12 - 16 - 25 - 30 mm
- Single jaw stroke: 5 ± 60 mm (depends on version)
- Maximum operation frequency: 1 cycle/sec



Grippers with parallel jaws - P5 series TECNO

- Gripper type: two-jaw, with jaws in parallel arrangement, with long stroke
- Construction: double-acting, for gripping bulky objects, for internal and external gripping, with jaws position control, made of polymer materials, for operations with TECNO series actuators
- Operation of 1 500 000 cycles without any maintenance is guaranteed
- Single jaw stroke: 5 mm
- Repeatability: 0.05 mm
- Weight: 0.15 kg

Grippers



Grippers with angular jaws - P6 series

- Gripper type: two-jaw, with jaws in angular arrangement
- Construction: double-acting, with magnetic position sensors (on request), for internal and external gripping
- Piston diameter: 16 - 20 - 32 mm
- Seals: NBR
- Gripping force (per jaw at 6 bar): 15 ÷ 70 N (depends on the size)
- Jaw opening angle: 30°, 160°
- Service life: over 10 million cycles



Grippers with angular jaws - P7 series

- Gripper type: two-jaw, with jaws in angular arrangement
- Construction: double-acting, with magnetic position sensors, and a slot to fit the position sensors in
- Piston diameter: 16 - 20 - 32 - 50 mm
- Gripping force (per jaw at 6 bar): 30 ÷ 225 N (depends on size)
- Jaw opening angle: 30°
- Seals: NBR, polyurethane



Grippers with angular jaws - P8 series

- Gripper type: two-jaw, with jaws in angular arrangement
- Construction: single-acting, normally open, with magnetic position sensors, corrosion resistant, made of diamagnetic material
- Piston diameter: 32 - 40 - 50 mm
- Gripping force (per jaw at 6 bar): 25 ÷ 80 N (depends on the size)
- Jaw opening angle: 8°
- Service life: over 2 million cycles



Grippers with angular jaws - P9 series

- Gripper type: two-jaw, with jaws in angular arrangement
- Construction: double-acting, with magnetic position sensors (on request), for internal and external gripping
- Piston diameter: 16 - 20 - 32 mm
- Seals: NBR
- Gripping force (per jaw at 6 bar): 15 ÷ 70 N (depends on size)
- Jaw opening angle: max. 160°, opening angle can be adjusted
- Service life: over 10 million cycles



Grippers with angular jaws - P10 series

- Gripper type: two-jaw, with jaws in angular arrangement
- Construction: with magnetic position sensors, for external gripping
- Piston diameter: 34 - 44 - 54 - 80 mm
- Gripping force (per jaw at 6 bar): 32 ÷ 275 N (depends on size)
- Jaw opening angle: 20° ÷ 180°, opening angle can be adjusted with 1° accuracy (for each jaw)
- Service life: over 2 million cycles without any maintenance
- Repeatability: 0.1 mm

Grippers



Grippers with parallel jaws - P11 series

- Gripper type: three-jaw, with jaws in parallel arrangement
- Construction: double-acting, with magnetic position sensors, for internal and external gripping, version with four self-centering jaws available on request
- Piston diameter: 16 - 20 - 25 - 40 - 60 - 80 mm
- Closing force (per jaw at 6 bar): $58 \div 1500$ N (depends on size)
- Opening force (per jaw at 6 bar): $65 \div 1700$ N (depends on size)
- Max. operation frequency: 1.5 to 1.2 cycle/sec. (depends on size)



Gripper with parallel jaws - P12 series

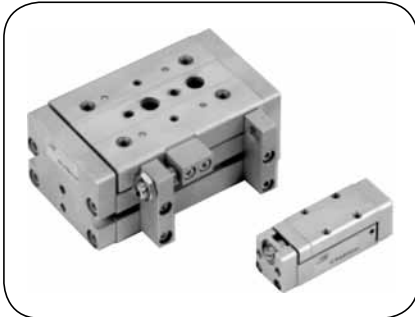
- Gripper type: three-jaw, with jaws in parallel arrangement
- Construction: double-acting, with magnetic position sensors, for internal and external gripping, with self-centering jaws, of excellent accuracy
- Piston diameter: 50 - 64 - 80 - 100 - 125 mm
- Single jaw stroke: $4 \div 10$ mm (depending on size)
- Gripping force (per jaw at 6 bar): $85 \div 1930$ N (depends on size)
- Service life: over 1 500 000 cycles without any maintenance
- Repeatability: $0.01 \div 0.05$ mm (depends on size)

Guide units



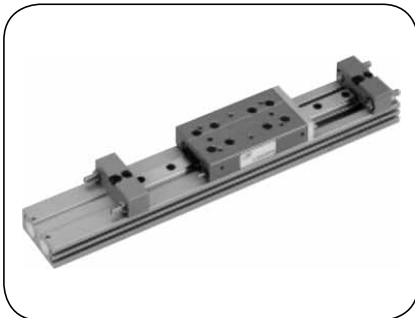
Guide units - S7 series

- Type: heavy duty guide unit
- Designed for: rigid and stable support for $\varnothing 32$ actuators according to ISO 6431, and for $\varnothing 25$ rodless actuators, used in the case of very long strokes
- Stroke length: $25 \div 2000$ mm (on request - 4000 mm)
- Versions: with adjustable stroke stop, hydraulic cushioning, with protection against dust, with position sensors, with interface plates



Guide units - S8 series

- Type: guide with double-acting actuator
- Construction: with in-line ball bearings, with re-circulation ball bearings, with magnetic position sensors
- Piston diameter: $8 \div 40$ mm
- Stroke length: $25 \div 2000$ mm (on request - 4000 mm)
- Versions: with adjustable stroke stop, hydraulic cushioning, with adjustable pneumatic cushioning
- Operation with unlubricated compressed air also possible



Guide units - S9 series

- Type: ball guide with double-piston drive
- Construction: double-acting, with magnetic position sensors
- Piston diameter: 12 - 16 - 20 mm
- Stroke length: $75 \div 250$ mm (depends on size)
- Max. piston speed: $50 \div 500$ mm/sec
- Versions: with adjustable stroke stop, hydraulic cushioning
- Operation with unlubricated compressed air also possible



Guide units - S10 series

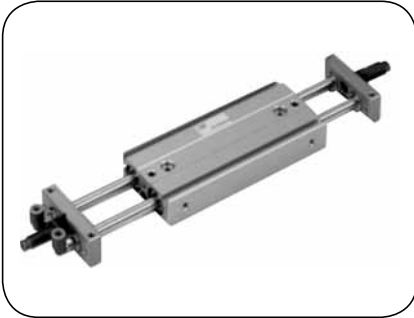
- Type: „TWIN“ double-acting actuator
- Construction: with magnetic position sensors, with slide or ball bearings
- Piston diameter: 2x12 - 2x16 - 2x20 - 2x25 - 2x30 mm
- Stroke length: 15 to 125 mm (depending on size)
- Max. piston speed: 30 to 100 mm/sec
- Versions: with adjustable stroke stop, hydraulic cushioning
- Operation with unlubricated compressed air also possible



Guide units - S11 series

- Type: „TWIN“ double-acting actuator
- Construction: with magnetic position sensors, with slide or ball bearings with a double through-rod
- Piston diameter: 2x12 - 2x16 - 2x20 - 2x25 - 2x30 mm
- Stroke length: $25 \div 150$ mm (depends on size)
- Max. piston speed: $30 \div 200$ mm/sec
- Versions: with adjustable stroke stop, hydraulic cushioning, with double-sided hydraulic cushioning
- Working medium: compressed air with $20 \mu\text{m}$ filtration degree

Guide units



Guide units - S12 series

- Type: „TWIN“ double-acting actuator
- Construction: with magnetic position sensors, with slide or ball bearings with a double through-rod, compressed air ports at the end plate of the piston rod
- Piston diameter 2x12 - 2x16 - 2x20 - 2x25 - 2x30 mm
- Stroke length: 25 ÷ 150 mm (depends on the size)
- Max. piston speed: 30 ÷ 200 mm/sec
- Versions: with adjustable stroke stop, hydraulic cushioning, with double-sided hydraulic cushioning



Guide units - S13 series

- Type: rodless actuator with mechanical coupling
- Construction: double-acting, with magnetic position sensors, cushioning in end-of-stroke positions adjustable on both sides
- Piston diameter: 16 - 25 - 32 - 40 mm
- Stroke length: 100 ÷ 5700 mm
- Seals: NBR, Viton (depends on piston speed)
- Exploitation of unlubricated compressed air also possible



Guide units - S14 series

- Type: rodless TWIN actuator with mechanical coupling
- Construction: double-acting, with magnetic position sensors, cushioning in end-of-stroke positions adjustable on both sides
- Piston diameter: 2x16 - 2x25 - 2x32 mm
- Stroke length: 100 ÷ 5700 mm